

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated January 12, 2006. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due consideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 2-15 are under consideration in this application. Claim 1 is being cancelled without prejudice or disclaimer. Claims 2, 5, 7 and 11 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim applicant's invention. New claims 13-15 are being added.

The claims and the specification are being amended to correct formal errors and/or to better recite or describe the features of the present invention as claimed. All the amendments to the claims and the specification are supported by the specification. Applicant hereby submits that no new matter is being introduced into the application through the submission of this response.

Allowable Subject Matter

Claims 2, 5-6 and 11-12 would be allowed if rewritten into independent form to include the limitations of their base claim and any intervening claims. As claims 2 and 11 are being rewritten into independent form to include the limitations of their base claim and any intervening claims, and claims 5-6 and 12 now depend from claim 2, it is submitted that claims 2, 5-6 and 11-12 are in condition for allowance.

Prior Art Rejections

Claims 1 and 7-10 were rejected under 35 U.S.C. §102(e) as being anticipated by US Application No. 2004/0174484 to Matsumoto (hereinafter "Matsumoto"). This rejection has been carefully considered, but is most respectfully traversed.

As claim 1 is being cancelled without prejudice or disclaimer, the relevant rejection thus becomes moot.

The liquid crystal display device of the invention, as now recited in claim 7,

comprises: an active matrix substrate SUB1 on which a large number of gate lines GLs and a large number of drain lines DLs which cross each other, switching elements which are formed at respective crossing portions of the gate lines and the drain lines DLs in a matrix array, pixel electrodes PXs which are driven by the switching elements and counter electrodes CTs which drive liquid crystal using an electric field generated between the counter electrodes CTs and the pixel electrodes PXs are formed; and another substrate SUB2 which faces the active matrix substrate by way of a liquid crystal layer. At least one of the pixel electrode PX (Figs. 8-13, 14B) and the counter electrode CT (Figs. 1-2, 6-7, 11-13, 14B) in each of the crossing portions has a groove which is recessed along an extending direction of a respective electrode, said groove does not cut through the respective electrode.

The groove on the counter electrode CT provides a shielding effect (Fig. 3), which is not available in Fig. 3 when the counter electrode CT maintains a flat plate without grooves (p. 12, 2nd paragraph). *“By forming the grooves in the counter electrode CT, the electric field generated at an end portion of the drain line DL is lowered downwardly. Accordingly, leaking of the electric field from the drain line DL to the pixel electrode PX can be suppressed (p. 13, last paragraph).”*

By forming the groove AL in such a fine or narrow pixel electrode PX, the contact area of the pixel electrode PX with the passivation layer PAS2 disposed below the pixel electrode PX is increased and hence, the peel-off of the pixel electrode PX is suppressed whereby the yield rate is enhanced (p. 17, 2nd paragraph).

Applicants respectfully contend that Matsumoto fails to teach or suggest such a “groove being recessed along an extending direction of a respective electrode and not cutting through the respective electrode” as does the invention.

In contrast, Matsumoto's slit 115 cuts through the Y direction extending portions 111b of the common electrode 11 (Figs. 3-4) to reduce the opposing area of the data line 106 and the Y direction extending portion 111b so as to suppress electrostatic capacitance stored between the data line 106 and the Y direction extending portion 111b to a relatively low level, and signal delay is reduced ([0175], p. 9). Matsumoto then uses a portion 202a of the black matrix 202, which is provided right above the slit 115, to terminate the resulted leakage of the electric field generated from the data line 106 through the slit 115 to the liquid crystal 300 ([0176], p. 9). Matsumoto teaches away from the invention by having its slit 115 cut through the Y direction extending portions 111b of the common electrode 111.

In addition, Matsumoto's slit was formed only on the common electrode 111, but not

on any pixel electrode 112.

Although the invention applies the general grooves, the invention applies the grooves on and along an extending direction of a respective electrode and not cutting through the respective electrode to achieve unexpected results or properties. For example, to suppress leaking of the electric field from the drain line DL to the pixel electrode PX by the groove on the counter electrode CT. As another example, to suppress any peel-off of the pixel electrode PX from the under-layer by the groove on the pixel electrode PX. The presence of these unexpected properties is evidence of nonobviousness. MPEP§716.02(a).

"Presence of a property not possessed by the prior art is evidence of nonobviousness. In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (rejection of claims to compound structurally similar to the prior art compound was reversed because claimed compound unexpectedly possessed anti-inflammatory properties not possessed by the prior art compound); Ex parte Thumm, 132 USPQ 66 (Bd. App. 1961) (Appellant showed that the claimed range of ethylene diamine was effective for the purpose of producing " 'regenerated cellulose consisting substantially entirely of skin' " whereas the prior art warned "this compound has 'practically no effect.' ").

Although "[t]he submission of evidence that a new product possesses unexpected properties does not necessarily require a conclusion that the claimed invention is nonobvious. In re Payne, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). See the discussion of latent properties and additional advantages in MPEP § 2145," the unexpected properties were unknown and non-inherent functions in view of Matsumoto, since Matsumoto does not inherently achieve the same results. In other words, these advantages would not flow naturally from following the teachings of Matsumoto, since Matsumoto fails to suggest applying the slits without cutting through the respective electrode, but requires the opposite.

Applicants further contend that the mere fact that one of skill in the art could rearrange Matsumoto's slits to meet the terms of the claims is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for one skilled in the art to provide the unexpected properties, such to suppress leaking of the electric field from the drain line DL to the pixel electrode PX by the groove on the counter electrode CT, or to suppress any peel-off of the pixel electrode PX from the under-layer by the groove on the pixel electrode PX, without the benefit of appellant's specification, to make the necessary

changes in the reference device. *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). MPEP§2144.04 VI C.

The cite prior art references and their combinations fail to teach or suggest each and every feature of the present invention as recited in independent claim 7. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

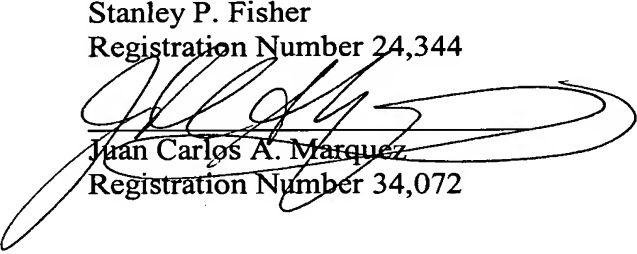
Conclusion

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

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